

experiences. This diversity is not exhaustive but typical of design and design research approaches. The chapters demonstrate the value of different perspectives, exploring how design approaches and processes are understood, theorized and practiced differently. No chapter in this book is ‘monodisciplinary’.

Indeed, given the complex, unpredictable, context dependent and emergent nature of design constraints and opportunities, monodisciplinarity makes little sense. Disciplines – like design, sociology, economy, engineering – study different areas from different perspectives; they separate what needs to be understood as whole, such as the appropriation of new technology, the workings of policy measures, or the effects of a performance. Multi-disciplinarity can facilitate insights into the dynamic complexities of the socio-material-technical cultures design seeks to change. However, sometimes ‘just’ approaching this complexity from different perspectives is not enough. Combining multi-disciplinary insights does not enable an understanding of the lived, emergent, ongoing production of socio-material-technical cultures. Some of the work we present in this book paves the way for more ambitious ‘post-disciplinarity’ (Jessop and Sum 2001, Mayer Harrison et al. 2007), a return to the pre-disciplinary roots of many disciplines whose isolation and specialization was formed in the enlightenment spirit of rational inquiry and the (social) engineering confidence of modernity. Post-disciplinarity fosters study and intervention as a deliberate (although uncertain) holistic ‘mode 2’ endeavour. It enables analysis and design to follow connections all the way through and to forge viable new connections, because they are more mindful of the multitude of dependencies. Post-disciplinary researchers and designers integrate other disciplines’ knowledge and skills, allowing for sophisticated interferences and synergies that enable groups of people to grasp the interconnectedness of factors and domains influencing socio-technical innovation. In our view some of the *interdisciplinary* perspectives and approaches discussed in this book take a step towards *post-disciplinarity*.

CREATIVITY, SOCIAL CHANGE AND EXPERIMENTS

Since design is occupied with making things and processes, creativity is a central theme in design research, but very different interpretations exist. Creativity and innovation are buzz words, for example, in Richard Florida’s best seller *The Rise of the Creative Class* (2002). Economic prosperity and welfare is here associated with the ability to adapt successfully to constant change, inventing novel modes of doing things. Perhaps the most problematic aspect of this work is that these abilities are said to be properties of a particular social class – the creative class. In contrast, anthropologists Hallam and Ingold (2007) are sceptical towards this focus on novelty and design, and suggest to emphasize improvisation and imitation to reach a more generative understanding of creativity. Improvisation sits well with most of the contributions in this book, as it thrives on collaboration and diversity, depends on epistemic and material skills, and the networking abilities and strategies employed in design.

A very different orientation is found in Design Science Research and their interest in technological rules (Van Aken 2004), seen to be capable of guiding design processes, as

suggested in chapter 5 by Pries-Heje and Baskerville and critically discussed in chapter 4 by Scheuer. In contrast to approaches focused on describing and enabling collaborative ‘control’ over improvisation, emergence, translation and situated practice, technological rules are attempts to define general procedures that can be applied in certain situations, categorized according to the types of problems and their contexts. Whether such procedures lead to their goal is discussed in Scheuer’s reflective study of the making of clinical pathways in a psychiatric hospital where he was a development consultant. Technological rules represent a reductive rather than integrative ‘mode 2’ approach to complex systems, in no small part motivated by the limited time and often severe pressures organizational managers experience in search for business or production process improvements.

However different these approaches are, they share a common perspective on design processes. In addition to this, chapter 9 by Holm, Søndergård and Hansen broadens the analysis by discussing the power of technological regimes in their study of attempts of eco-friendly design in building materials. They show how construction industries are heavily structured through such regimes, placing significant and intractable constraints on design. Holm, Søndergård and Hansen argue that new ways of manufacturing materials may succeed in niches, but a deeper societal ‘meta-design’ process is required to manage the institutionalized and path-dependent powers of the existing industrial systems (including types of materials used). ‘Creativity’ takes on a different meaning here, moving away from notions of ‘the unfettered freedom for creativity’ towards practices of improvisation, experimentation and networking to bring about change.

Indeed, one could say more broadly that society and the environment have become the experimental objects. In the name of progress and global economic competitiveness, individuals, societies and the whole planet have become experimental objects (Wynne and Felt 2007). For example, medical interventions, energy and people’s food, are enhanced or created through instrumental application of design, science and technology. Innumerable, both positive and negative examples of emergence of unanticipated problems and opportunities reveal that in contemporary knowledge or information (technology) societies, uncertainty is not residual but immanent, or – to put it more flippantly – a feature, not a bug. Combining Wynne and Felt’s analysis with Nowotny et al.’s concepts of ‘mode 2’ science may, we would like to argue, inform ‘mode 2’ modes of design. That is, designers and their clients/customers/collaborators may use this book to inform their search for a more deliberate, collective and considered integration of science, design and everyday practice. This is critical when we acknowledge that emergence cannot be controlled by more scientific inquiry or more circumspect technological development, it is irrepressible. As a result, all design, science, and technology is inescapably experimental at local, social, global, and environmental scales.

FROM DESIGNERS AND USERS TO RELATIONAL TRANSLATIONS

Much research in design has been around the enormous importance of involving users. This book points to the often problematic or even scapegoat character of users. Chapter